



ISO/TC 197
Hydrogen technologies

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ISO TC 158 & TC197 JWG 7
report of activity
(TC 197 meeting 2016 December 8th)

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Objectives of JWG 7

- Develop a standard for analytical methods to be used for assuring the quality of H₂ according to published ISO 14687-2
- **Title of ISO 21087**
 - Hydrogen fuel -- Analytical methods -- Proton exchange membrane (PEM) fuel cell applications for road vehicles
- Work in coordination with WG 28 , WG 24 and WG 27 (for following the revision of ISO 14687)



Table of content of ISO 21087

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1 Scope

2 Normative references

3 Terms and definitions

4 Fuel quality specifications

5 Detection limit and quantification limit

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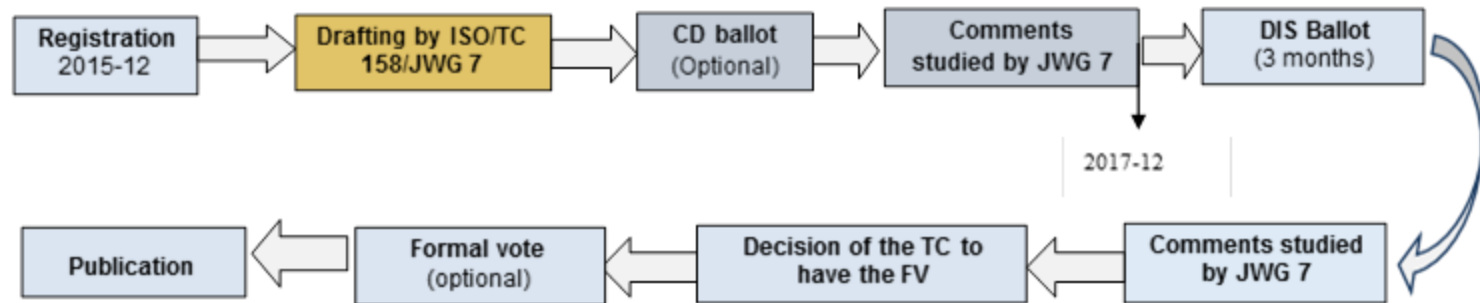
9 Analytical report

10 Safety

Annex



Timing for ISO 21087



CD : 2017 – 06 (target)

DIS: 2017 – 11 (target)

IS publication: 2018 - 12



Report for 2016

- **Three meetings of WG 7 have been held during the reporting period.**

1) On 20 and 21 April 2016 the WG had a meeting at *California Air Resources Board, Sacramento, California.*

- First point on the agenda was to define the objectives of JWG 7 and the coordination with ISO TC 197 WG 24, WG 27 and WG 28. It was accepted to follow the impurity component specs of **published ISO 14687-2** and to define the validation of analytical methods adapted to these measurements.
- Several **presentations of the analytical methods** used in US, Europe and Japan were done by the participants. This overview was used to define the scope and the outline of the new document WD 21087 with the following title: “Hydrogen fuel — Analytical methods — Proton exchange membrane (PEM) fuel cell applications for road vehicles”
- **Two lab tours** were also organized in DMS Lab and Smart Chemistry lab.



Report for 2016 (2)

2) On 1st July 2016 the WG had the second meeting at Linde site, Munich, Germany.

The following statements were made with respect to the drafting of the JWG 7 standard:

- present the freedom to use an appropriate analysis method
- focus on lab analysis after on site sampling and not on line monitoring.
- contain information about the way to check the analysis method in order to obtain confidence in the measurement result
- contain explanation for the determination of LoD (Limit of Detection) and LoQ (Limit of Quantification)
- clearly highlight the fact that each measurement result has to be accompanied by a measurement uncertainty statement.
- Sampling, with the emphasis on **safety issues, is part of WG 24**. Sampling with respect to keep the **integrity of the sample** (e.g. concerning cylinder inner wall treatments, passivated transfer lines & valves, and so on) is **part of JWG 7**.



Report for 2016 (3)

3) On 5th December 2016 the WG had the third meeting at Shell site, Amsterdam, Netherlands.

The target of this third meeting was to have agreement for:

- Calculation of Limit of detection and limit of quantification.
- Acceptable uncertainties for the measurements including the ones near the detection limits
- Discussion about the list of potential analytical methods
- Presentations were done on NPL activities in developing new analytical methods and on results of H2 quality in several HRS in Europe from HyCoRA project.

Next steps:

- Write a **first draft document for the end of February**
- Next meeting end of May (date and location to be confirmed)